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[Empirical calibration of nebular abundances] An empirical calibration of nebular abundances based on the sulphur emission lines. [Angeles I. Díaz & Enrique Pérez-Montero] Angeles I. Díaz and Enrique Pérez-Montero Dpto. de Física Teórica, C-XI, Universidad Autónoma de Madrid, Cantoblanco, 28049-Madrid, Spain Accepted . Received 1998 firstpage–lastpage 1998

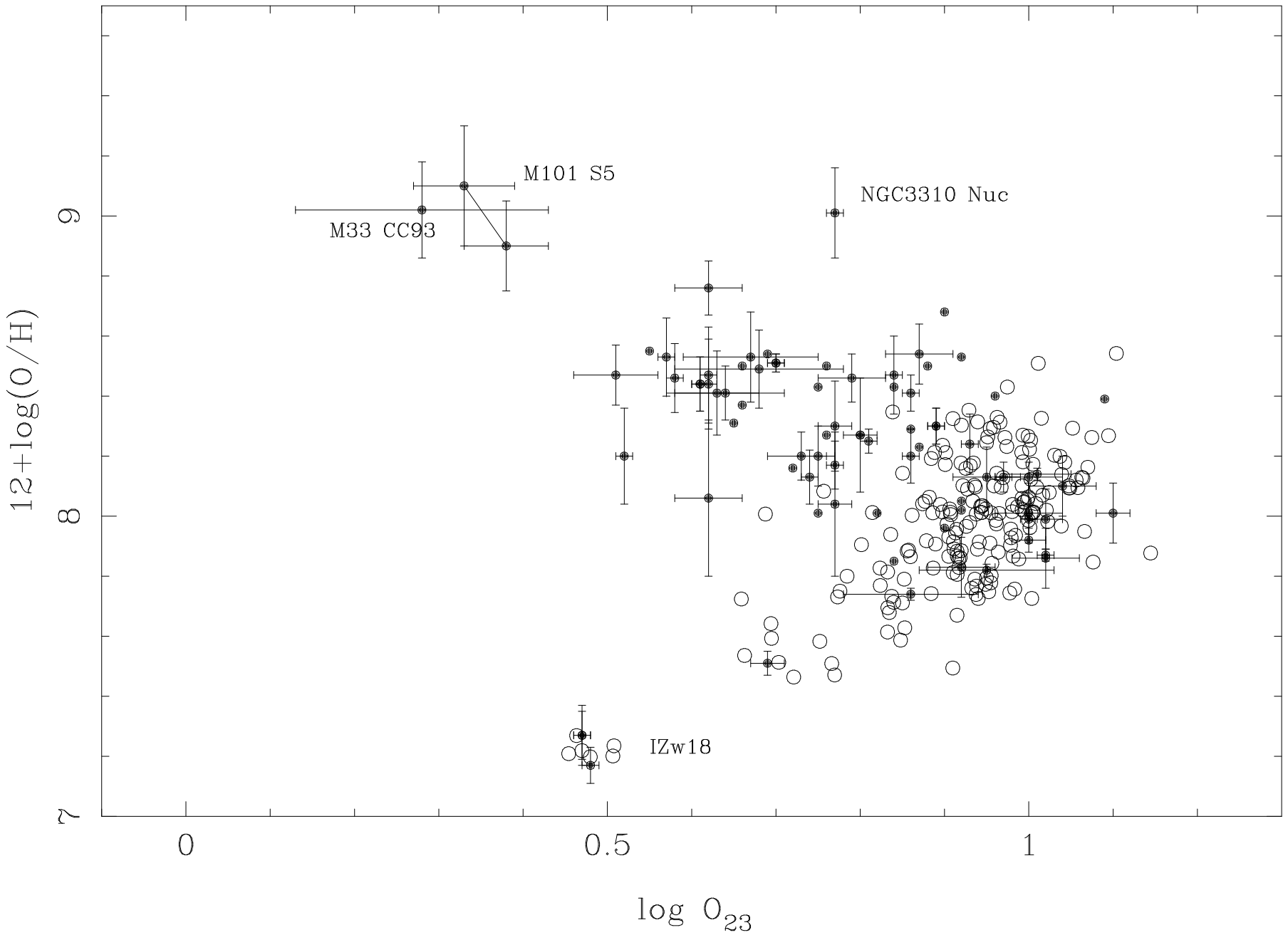
theoremTheorem[section]

document

firstpage

abstract

We present an empirical calibration of nebular abundances based on the strong emission lines of [SII] and [SIII] in the red part of the spectrum through the definition of a sulphur abundance parameter S_{23}. This calibration presents two important advantages against the commonly used one based on the optical oxygen lines: it remains single-valued up to abundances close to solar and is rather independent of the degree of ionization of the nebula.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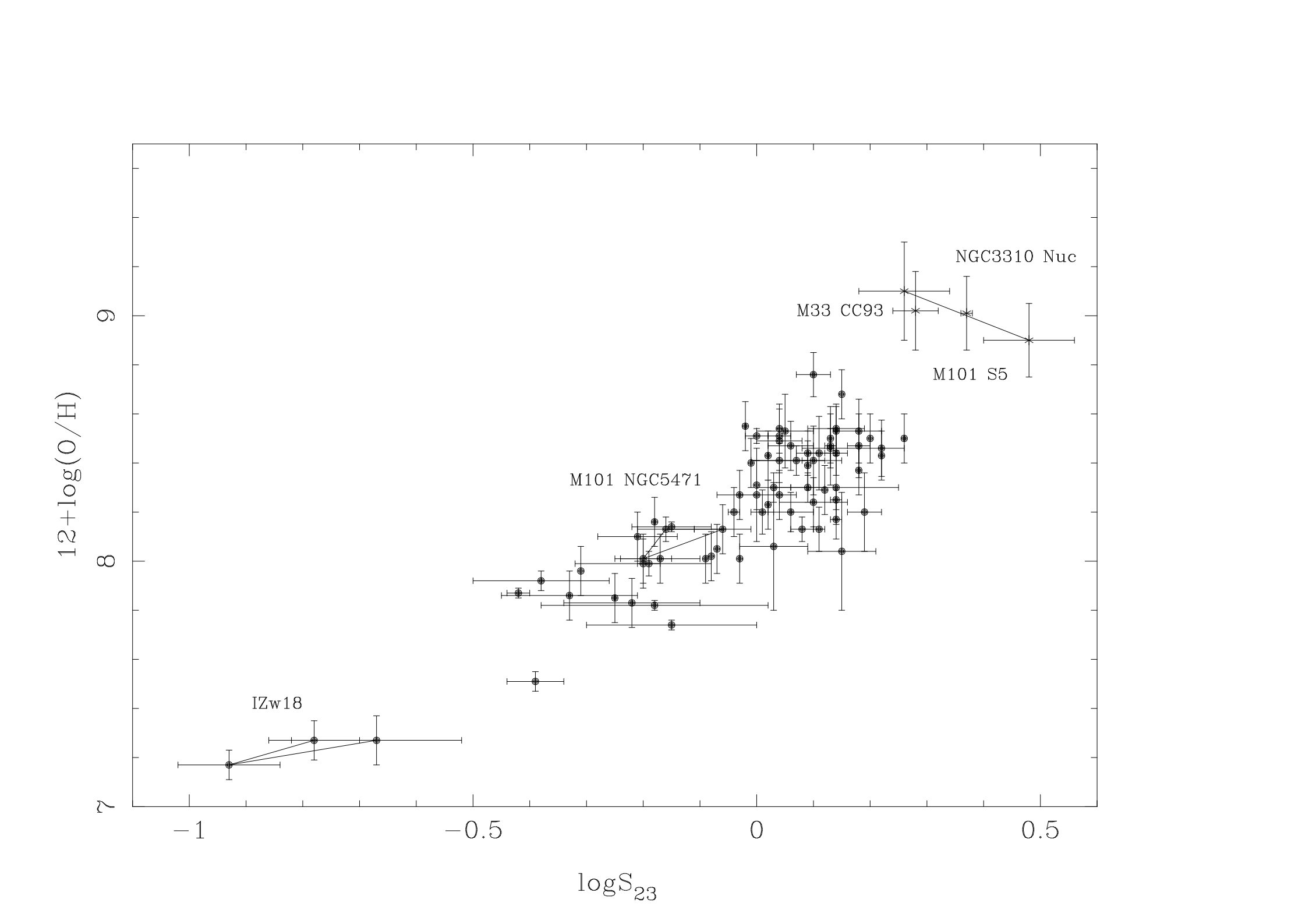
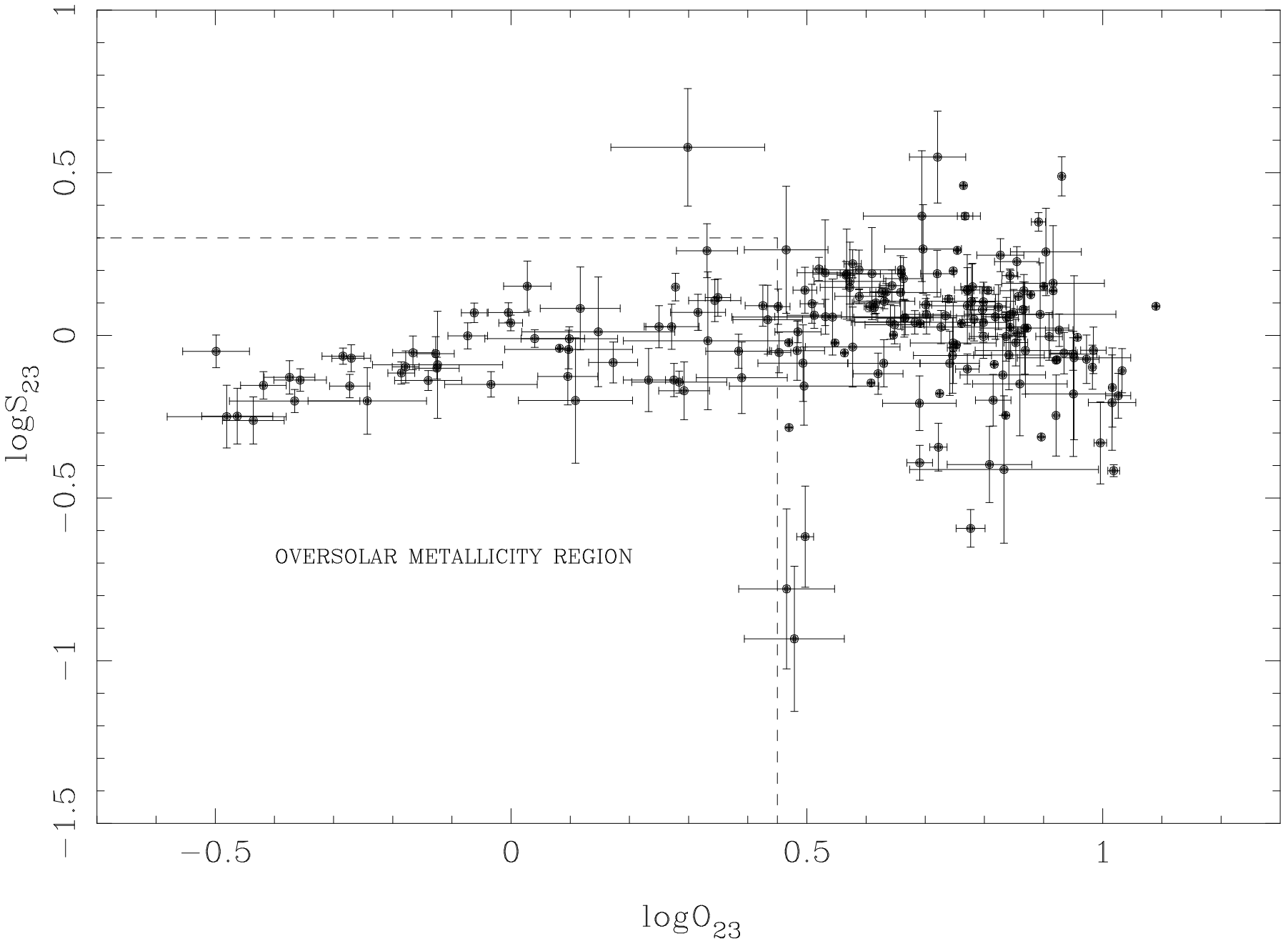
M33 CC93
NGC3310 Nuc
IZw18
12+log(O/H)
log O23
7
8
9
0
0.5
1


NGC3310 Nuc
M33 CC93
M101 S5
M101 NGC5471
IZw18
12+log(O/H)
7
8
9
−1
−0.5
0
0.5
logS23


OVERSOLAR METALLICITY REGION
logS23
logO23
1
0.5
0
−0.5
−1
−1.5
−0.5
0
0.5
1